

ZSDMUDO 1st Generation DMU ActiveDrive Dapol O gauge 2021

We know that you will want to try out your new sound project immediately – we are modellers too!

There are some unique control features which require a little explanation.

Please spend a few moments to read these notes which have been produced so that you may obtain the maximum satisfaction from your new sound scheme.

The sounds should work perfectly when the decoder is fitted correctly. Individual models may require some fine tuning that you can achieve with your DCC controller.

What is ActiveDrive?

This is a system developed to allow more prototypical sounds to be deployed across a wide range of operating conditions.

The sounds have been programmed in such a way that you, the user, may change the way that the sounds respond to your driving style or needs. This avoids the need for reprogramming and all the additional costs that would imply.

Throttle Response Scheme, Driving Tips

As supplied, the decoder will produce the typical sounds of a first generation DMU ready for work.

Use F1 to start the engines. Each power car has two engines which are started sequentially. After both engines have started the unit will stand with the diesel engines ticking over at idle.

Occasionally, if standing, the driver will increase the engine revs to drive the compressor for more air pressure. This compressed air is to operate the controls, not the brakes which function via vacuum.

These units had four gears, operated manually via Electro Pneumatic valves (EP Valves) which give the characteristic hiss. After accelerating in each gear, the engine was required to spool down to more closely match the speed of the gearbox. This is why there is a characteristically long pause during gear changes.

Furthermore, the real units were only capable of coasting when in direct drive, 4th gear. When a period of coasting was anticipated ('Know The Road') if not already in top gear, 4th would be selected by the driver.

This sound project is designed to simulate all of these characteristics automatically, including the compressor speed-up in standing.

The sounds will respond to the throttle control in the following way:

Automatic sequence

Select speed step 1. The engines will increase power to get the unit moving and will continue acceleration sounds until they reach maximum permissible revs. At this point, the engines will spool down ready to select 2nd gear. However, it will not be possible for the gear to change until the unit achieves a scale road speed of approximately 15 MPH and so the engines will 'idle' between gears. Similarly to achieve the following gear change, the road speed must be approximately 27 Scale MPH and 4th gear at 41 MPH. At this point the unit will cruise at a steady engine power. These points are all contained within the project, but the actual speed steps may vary slightly depending upon your controller and model.

Manual engine sound selection

If driving below the speed that engages 4th gear or backing off one speed step the engine revs will drop to idle and you can choose to cruise using F7 to raise the revs a bit to maintain a medium speed.

In practice, this means that if you increase the speed steps to 64 in a smooth progression, the unit will increase in speed and provide realistic acceleration and gear change sounds.

F6 forces the sound to idle only allowing you to move the vehicle short distances without a full acceleration sound, lift the revs with F7 for these types of positioning or shunting moves. Release F6 and 7 before setting off on a service train.

Deceleration

Notwithstanding the F6 feature, there is another way to coast and decelerate with the appropriate sounds playing. It works in a different way and has slightly different outcomes.

From any speed, if you reduce speed steps the automatic sounds will revert to 'engines idling' if not already playing. This provides a convenient coasting control.

Provided you send no acceleration commands, you may continue to reduce speed all the way to zero in coast mode, just as a real DMU would be driven.

Light Loaded Mode

In this version there is an added feature.

These vehicles are relatively lightweight and their power units are just about adequate for their purpose. As a consequence, their performance is very dependent upon loading and gradients.

Most other DMU sound projects ignore this reality and provide a 'one size fits all' solution.

We constantly endeavour to match reality ever more closely, so now you can choose to run your DMU lightly loaded or full of passengers, uphill or down.

By default, the decoder will simulate a heavy loaded train, or one starting on an adverse gradient. The acceleration rate will be retarded due to the high inertia, and the 1st gear acceleration sounds will be drawn out as the units struggle for speed.

To simulate a lightly loaded train, or one starting on a down gradient, engage F key 5 before opening the throttle. Performance will be transformed. Inertia is reduced so acceleration is rather more brisk and the 1st gear acceleration sound is shorter, reflecting the earlier gear change possible.

Similarly the heavy train will take longer to come to a halt due the high momentum; F5 will allow a 'light' train to stop more quickly.

Brakes

F2 is the Brake Key which can be 'dabbed' or held for varying durations. There is little sound as they are vacuum brakes.

If the throttle is reduced in advance, as a real driver would do, before operating the Brake Key, a braking force will be applied which will continue to increase the longer F2 is held. Short dabs will provide speed trimming, held down continuously will result in a controlled 'Emergency Stop'.

It's now down to your skill and knowledge to simulate any eventuality!

User Sounds

I remember these vehicles as having noisy engines, squealing wheels, slamming doors with drop-light windows and external door knobs. They seemed to be forever accelerating, coasting and stopping in an endless cycle. So that's what I've modelled into the sound file. Some of the F keys play one sound when switched 'On' and a different, complementary, sound when switched 'Off'. This helps to expand the number of different sounds available.

Function list.

F0	White directional marker lights on/off
F1	2 Engines start up/shut down
F2	Brake Key
F3	Lo-Hi Horns (hold to extend second tone)
F4	Hi-Lo horns (hold to extend second tone)
F5	Light Loaded Mode
F6	Idle only
F7	Mid revs for shunting or cruising
F8	Guard's Whistle
F9	Flange squeal (adjustable length)
F10	Rear red lights off
F11	Double buzzer code
F12	Single buzzer code,
F13	Driver's door
F14	Passenger door slams
F15	Air tanks drain down
F16	Handbrake applied
F17	Windscreen wipers
F18	Droplight window
F19	Directional cablights
F20	Carriage interior lights

Function control of sound volume

F27	Sound volume down
F28	Sound volume up

If you controller latches these functions on then remember to switch them off again once your desired sound level is achieved.

MX644C with ZSDMU DO soundfile 2x 1" speaker SP1 . Optional plug in bass reflex speaker DSS229.

Detach and extend "in light" wire to base of pin 3 on 21 pin socket. **This does NOT need to be done when using a MS440 decoder** rather than MX644.

